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ABSTRACT

The central thesis of the paper is that there are beneficial outcomes derived from engagement in the process of creating instructional materials, quite apart from the benefits to those who use the materials later. Of the three stages in materials production--design, development, and dissemination--this paper highlights the development stage by exploring the benefits accrued to individuals, development teams, and pilot audiences during this stage. The development stage is viewed as encompassing three subprocesses: (1) critical review of materials drafts, leading to increased intellectual independence and scholarly rigor of developers; (2) pilot testing of the somewhat refined drafts, a process that enhances developers' leadership skills, the development team's cohesiveness, and pilot audience professionalism; (3) technical production of the final products, that increases developers' administrative skills. The subjective data base for this analysis was a funded project to create instructional materials for the advancement of sex equity in education. The author was a project evaluator and a development team leader. The benefits of involvement in the creative processes are discussed in terms of their importance to female educators. (Author)

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A 3-D INTERPRETATION OF CHANGES INDUCED BY THE CREATION OF INSTRUCTIONAL MATERIALS:

THE DEVELOPMENT PROCESS

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A 3-D INTERPRETATION OF CHANGES INDUCED BY THE CREATION OF INSTRUCTIONAL MATERIALS:

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The Context of this Paper

So often in the preparation of proposals or the launching of creative projects our emphasis is on the impact and usefulness of the products of our efforts. Rarely is attention drawn to the beneficial impact of the creative process itself. The purpose of this Symposium, as explicated in an earlier paper,[1] is to redress this oversight, to call attention to changes wrought by creative endeavors, quite apart from their products.[2]

For the Symposium as a whole, the creation of instructional materials is viewed as encompassing three distinct stages: the Design stage, the Development stage, and the Dissemination stage. At each of these "3-D" stages, there is potential for desired changes at the individual, the small group, and the environmental (or quasi-group) levels. These areas of focus in the shaping of this Symposium can be depicted by a matrix, as follows:

	Design Stage	Development Stage	Dissemination Stage
Individual			
Small Group (Team)			
Environment			

The present paper treats the second column in this matrix, the development stage of materials creation.

The Nature of the Development Stage

The Design processes, as described earlier,[3] include the initial coming together

of people for the creative enterprise of conjuring a product from nothingness, assessing needs, reviewing literature and available materials, brainstorming for product ideas, and committing the ideas to paper in the form of the first rough drafts. Ideally, this is the stage for getting acquainted, establishing trust, building a team, and generating commitment to the project and the issues it addresses. Presumably, the Design phase reaches its end with that long sigh of relief when the first completed drafts of products are in hand: real products; concrete expressions of what were formerly elusive ideas.

The Development stage, by contrast, is that period of review and refinement, testing and reshaping, honing and sharpening that follows initial design. If the design stage represents the pangs of birth and the nurturance of infancy, the Development stage represents all the painful awkwardness of pre-adolescence and adolescent years. It is a time for self-examination, exposure beyond the comfortable confines of the "home" team, critical reviews, and sometimes restructuring of the less successful parts.

In this paper the Development stage will be discussed in terms of three sub-processes: critical review, pilot testing, and technical production. Each of these sub-processes, as experienced by developers in the WEEA project, will be explored with reference to one or more levels of analysis in the matrix presented above. An attempt is made in this paper to highlight unanticipated but beneficial changes that have not often been treated in the change literature.

Critical Reviews: Individual Growth and Development

One of the distinctive features of the field of educational administration, a feature that differentiates this field from the more mature disciplines and professions, is the marked absence of a sharply critical stance or scholarly debate. Published articles,

poorly conceived and weakly executed as many of them are, are not taken to task in the pages of our journals; individual works are scarcely ever criticized in public forum; even student efforts are rarely seriously criticized by professors beyond the limitations of a grade and a terse comment. I believe this norm of non-critical acceptance is damaging to our field as a whole and to individual students and professors within it: an absence of constructive criticism slows our development into a mature and rigorous profession and it precludes individuals' growth into intellectually secure scholars.

In the creation of instructional materials, however, the use of critical review is absolutely essential. The products of these creative efforts will appear before the public. They must be accurate and effective. They must communicate specific content to a broad and diverse audience. They must be artistically appealing as well as conceptually sound. Thus, the Development stage must include the open and frank criticism (constructive, if possible) of each piece of material produced during the Design stage, both within the confines of the team and across teams, so as to refine them as much as possible before exposing them to a broader review audience.

Because of our field's norms of non-critical acceptance, this process of critical review can be a traumatic, ego-shattering experience for the individuals involved. After all, the invention of creative materials is a high risk venture: it places before others the results of one's most private thinking and imagination. To have these products then criticized by colleagues, particularly when receiving criticism is such a new experience, can be a severe emotional shock. It can lead to anger, withdrawal, defensiveness, or insecurity.

In the development effort at the University of Tulsa, three products had been designed by individual team members -- a programmed text on Title IX,[4] a review and

synthesis of the literature on sex equity,[5] and a handbook of assessment tools.[6] When the team members came together with drafted products in hand for the purpose of critical reviews, the process proved too difficult to handle. Some team members were unwilling or unable to perceive desirable modifications of the materials. Some withdrew emotionally and intellectually from dialogue, adopting a stance of defeat and compliance. The team had not become strongly cohesive during the Design stage, and it came close to falling apart during this part of the Development stage. Team members seemed unable to differentiate between critique of the piece of work and critique of the person; they reacted with personal hurt feelings or anger to suggestions that were intended to pertain to objective issues.

The internal review process proved to be quite a learning experience for the team members! Fortunately, there was opportunity later to rebuild team spirit, so that the team fragmentation resulting from the critiques could be mended. The team members grew, I think, in their ability to read materials critically -- that is, to be intellectually active readers rather than passive acceptors of the printed word. More importantly, we became a bit tougher; we learned to accept criticism more objectively and to judge our own work with a more critical eye. To some extent, we learned to exercise some control over words and structures, to see that we can manipulate sentences and formats to create the effects we want.

The learnings inherent in this critical review process are particularly important for professional women. Women have so long been acculturated to coddling and cosseting. We've been socialized into wanting to be liked by everyone, seeking praise, garnering protection. Women in leadership positions must do without these social supports and must act independently in a competitive environment. I believe that the learnings asso-

ciated with the critical review process, painful though they were initially, will add to the strength, rigor, independence, and consequently effectiveness of the team members as they move into more advanced positions of leadership.

Pilot Testing: Leadership Skills, Team Cohesiveness, and Professional Development

Once the materials had been conceived, drafted, internally reviewed, and revised it was time to expose them to a broader and more objective audience for suggestions and pilot testing. The discussion in this section of the paper will center on my perceptions of the experiences of the other teams during pilot testing at the end of the first year.[7] It will focus on the initial development of leadership skills at the individual level of analysis, the enhancement of cohesiveness at the team level, and the professional development of workshop participants at the "environment" level.

For many of the development team members, particularly the student members, the pilot testing of materials was their first experience with program organizing, public speaking, or group process facilitating. Pilot testing was in the form of separate one-day or one-and-a-half-day workshops to which relevant target group members were invited, and to many of the developers this was a brand new and somewhat frightening experience. Not only did they have to plan a well-paced program, make arrangements for the publicity, facilities, and equipment, and organize the reproduction and distribution of pilot materials, but they then had to expose themselves and their products coherently and effectively to a roomful of strangers! The knowledge and skills derived from simply experiencing these activities are difficult to measure -- the learning from one's own mistakes, the recognition of what "works" and what doesn't, the gradual acquisition of poise before strangers -- but they are clearly leadership skills. I believe many of the individual team members gained somewhat in leadership ability by virtue of the

pilot-testing phase of materials development.

The exposure of the team to a potentially hostile audience had some impact on the team dynamics as well, I think. The literature on conflict[8] indicates that a threat from outside a group tends to drive the group members closer together, and that effect seems to have obtained in the case of same development teams. Team mambers had a jointly vested interest in having their workshop succeed; thus, their mutual supportiveness and assistance seems to have enhanced the team cohesiveness in some instances.[9]

The pilot testing stage was also the first opportunity to use the materials for the purpose for which they were intended, the professional development of educational leaders. This professional development had at least two dimensions. First, as indicated by the evaluation data, participants generally gained knowledge about sex equity in the course of the workshops.[10] That is, they apparently did gain some cognitive, affective, and skill-related knowledge as explicitly intended. Secondly and less obviously, I believe many gained a degree of professional stature through their workshop participation. For many target group participants. the workshops were their first professional involvements beyond the local limits of their own classroom or district or institution. Rarely do educators have the opportunity personally to have an impact on developments in education, especially developments of a national scope. The experience of providing reactions and suggestions for a national project must have had some effect, I think, on the participants' sense of professional pride; it must have helped the participants (particularly the women) realize they have a professional role that exceeds the narrow demands of their local jobs. And this enhanced awareness of professional identity is an important by-product of the pilot-testing process itself.

Technical Production: Individual Skills in Administration

After the internal reviewing and revising, the external exposure, and the further revising, the time had come for the actual production of the materials in their final form, the technical production phase of materials development. And was that a learning experience! Technical production is an exercise in crisis management if there ever was one! It is a time for practicing assertiveness as well as super-human restraint. It is a time of initiation by fire to the handling of administrative details.

In the development of our materials at the University of Tulsa, including a filmstrip, some transparencies, and several printed pieces, we learned the importance of planning, budget management, and coordination the hard way. Our technical consultant once remarked, "Oh, production always takes twice as long as it takes!" -- and we discovered that his estimate was conservative. The artists never quite grasped the effects we were trying to create; the technicians never quite understood the results we tried so hard to communicate; the typists never quite caught all the errors nor ever quite hit upon the perfect format.

Without belaboring these tribulations in the technical world, quite foreign to an ivory tower existence, let me simply note that the production phase of the Development stage affords an unique opportunity to learn administrivia and management skills. Once this immense hurdle is overcome and the completed products are in hand, the materials are ready for the Dissemination Stage.[11]

Summary

The purpose of this Symposium is to highlight the beneficial outcomes of materials creation itself, quite apart from the impact of the materials once they are completed. We are looking, in other words, at the enhancement of sex equity through the dynamics

of creativity rather than through the products of this creativity.

As explained in the introduction to this paper, the creative process is viewed as encompassing three stages: design, development, and dissemination. At each of these stages there is potential for growth on the part of the individuals involved, development within groups (teams) that are directly engaged in the creative activities, and changes in the environment within which the activities occur.

This paper has been directed toward the Development stage of materials creation, that stage entailing critical review, pilot testing, and technical production. The data base is primarily the personal experiences of team members at the University of Tulsa as we struggled through the development of one set of materials. The analysis is subjective, based solely on the introspection and retrospection of the author.

It seems to me that the individuals directly involved in this project grew tremendously in the context of the project. They learned to give criticism constructively as well as to take it objectively and professionally. They learned to plan and conduct professional development workshops and to serve as effective facilitators. They acquired management skills associated with coordinating a complex production effort.

At the group level, the importance of collaboration, cooperation and cohesiveness was graphically demonstrated. Despite difficulties that arose during the critical review phase, the team became an integrated unit through learning to cope with the broader environment. Many of the teams are stable now, and their members will likely provide mutual support throughout their careers.

And within the larger environment, for those educators who participated in the pilot workshops, there were beneficial outcomes as well. Those participants gained some knowledge about educational equity through use of the materials themselves. They

made new professional contacts at the workshops and, in some instances, forged the beginnings of local support networks.[12] And most importantly, they experienced some degree of enhanced professional pride through contributing personally to a major national effort.

These beneficial outcomes can be placed in the context of this Symposium by depicting them within the matrix that was presented earlier:

	Design	DEVELOPMENT	Dissemination
Individual		Critical Review increased scholarly professionalism increased skill in self-expression Pilot Testing leadership skills Technical Production management skills	
Group (Team)		Pilot Testing increased cohesiveness increased collaboration skills established long-term support networks	
Environment		Pilot Testing increased knowledge initiated local support networks increased professional identity	

The issue being raised by this Symposium generally and by this paper specifically is that there are unexpected dividends from the materials creation process itself, particularly in the Development stage, that are of key importance in the promotion of educational equity. In our efforts to enhance educational equity by preparing women for leadership positions, our attention should be drawn to the rich growth possibilities inherent in the creation of instructional materials. At the individual, group and environmental levels, materials development activities provide learning experiences that are

not readily available elsewhere. I am convinced that the people directly and indirectly involved with the development effort described here will be more effective educational leaders in the future by virtue of these experiences.

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2. The project to which the papers in this Symposium refer, "Five Training Modules for Preparing Educational Leaders to Enhance Educational Equity for Females," was sponsored by the University Council for Educational Administration with partial support from the Department of Health, Education and Welfare, U. S. Office of Education, Women's Educational Equity Act Program, August 1976 - November 1978 (Project No. 565AH61258, Grant No. G007604964). Goals and objectives articulated in the grant proposals centered primarily on the cognitive, affective, and skill-related learnings associated with the products of the project.

3. Charlotte Robinson. A 3-D Interpretation of Changes Induced by the Creation of Instructional Materials: The Design Process. Paper presented at the "3-D Interpretation of Changes" Symposium, American Educational Research Association, Division A, Annual Meeting, San Francisco, April, 1979.

4. Martha Brown and Paula Silver. How Well Do You Know Title IX? Columbus, Ohio: University Council for Educational Administration and the University of Tulsa, 1978 (USOE Project No. 565AH61258, Grant No. G007604964).

5. Virginia Baldwin and Paula Silver. The Pervasiveness of Sex Discrimination. Columbus, Ohio: University Council for Educational Administration and the University of Tulsa, 1978 (USOE Project No. 565AH61258, Grant No. G007604964).

6. Paula F. Silver (Ed.). Handbook of Assessment Tools for Enhancing Educational Equity. Columbus, Ohio: University Council for Educational Administration and the University of Tulsa, 1978 (USOE Project No. 565AH61258, Grant No. G007604964).

7. Since the University of Tulsa team entered the project in a development capacity after the first year of the project, this team was not involved in the preliminary pilot testing of materials. However, as the Project Evaluator the author was able to observe most of the pilot workshops of the other development teams.

8. See, for example: Lewis Coser. The Functions of Social Conflict

9. In a minority of the pilot workshops the team members did not apparently interact collaboratively; developers acted independently in presenting their own materials. It is doubtful that team cohesiveness was strengthened by pilot testing in these instances.

10. Paula F. Silver. Evaluation Report. Columbus, Ohio: University Council for Educational Administration, 1979 (USOE Project No. 565AH61258, Grant No. G007604964).

11. Beneficial outcomes of this stage are treated in: Martha McCarthy. A 3-D Interpretation of Changes Induced by the Creation of Instructional Materials: The Dissemination Process. Paper presented at the "3-D Interpretation of Changes" Symposium. American Educational Research Association, Division A, Annual Meeting, San Francisco, April, 1979.

12. This outcome is explored in greater detail in: Martha McCarthy, Ibid.